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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,934	05/14/2002	Philip K. Stafford	12048-0002	8709

7590 09/15/2003

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EXAMINER

ANDREA, BRIAN K

ART UNIT	PAPER NUMBER
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3662

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,934

Applicant(s)

STAFFORD, PHILIP K.

Examiner

Brian K Andrea

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 and 10. 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because of the following informalities:

Line 2 of the claim recites "sheer form". It is believed that this should read "sheet form" as there is no support for a "sheer form" of array in the disclosure.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7-9 recite the limitation "the element" in line 1 of each claim. There is insufficient antecedent basis for this limitation in the claim. It is believed by the examiner that this should read "the elements".

4. Claim 16 recites the limitation "said sheet" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. It is believed that claim 15 should read "sheet form" instead of "sheer form" in line 2 (see claim objection above) in which case there would be no problem with antecedent basis in claim 16.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 and 10-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,788,110 to Alhamad (hereinafter "Alhamad"), cited on the Information Disclosure Statement by the Applicant.

With regard to claims 1, 19, 20, 22, 23, and 26, Alhamad teaches an array for retrofitting a military vehicle (see column 8, lines 24-28), the array capable of being fastened to surfaces of the structure of the vehicle and comprising a plurality of elements 7 having reflective surfaces with substantially planar faces (see figures), wherein when the array is fastened to the structure the faces are oriented so as to reflect an incident radar signal in a direction away from its direction of incidence for a given range of incident directions (see column 1, lines 17-22). Alhamad does not explicitly mention the use of the array with a sea-going vessel however Alhamad does say that the array is to be used as "anti-radar protection...[for] aircraft or ground or other vehicle[s] to produce scattering of enemy radar beams and thus reduce or eliminate the vehicle's detectability..." (see column 8, lines 24-28). Because it is desirable to camouflage a military vessel from detection by enemy radar, it would have been obvious to use the protective array taught by Alhamad on a sea-going vessel.

With regard to claims 2 and 3, Alhamad teaches that the orientation of the faces (and edges of the array defining the boundary) is such that the faces are arranged so as to be oblique to the direction of incident radar for a given range of incident directions. Looking at figure 1A, it can be inferred that when the array is fastened to the outer surface of a vessel (or any other vehicle), the orientation of the faces of the array 7 will

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be arranged so that they are oblique to the direction of incident radar no matter what direction the radar signals are coming from.

With regard to claims 4-6 and claim 16, Alhamad does not teach a specific angle measurements for each element in the array. However, it is clear from figure 1A that the elements are of substantial obliquity and would therefore reflect incident radar signals of angles at least up to 30 degrees. Additionally, it can be inferred that the angling of the elements will provide rigidity to the structure to stiffen the foil (as required by claim 16).

With regard to claims 7 and 8, Alhamad teaches that the elements of the array have an elongated (see column 6, lines 42-45) prismatic cross section (see figure 1A).

With regard to claim 9, Alhamad teaches that the elements in the array are formed by "cutting metal sheets into small segments which are then mechanically formed into small ellipsoids..." (see column 6, lines 38-41). It is inherent that each ellipsoid has an apex and, since the elements have three dimensional shape, this apex is forward relative to the planar faces of the reflective surfaces.

With regard to claim 10, Alhamad teaches that the array comprises a plurality of uniform elements (see figure).

With regard to claim 11, Alhamad teaches that the array comprises a grid of uniformly spaced elements 7 having reflective surfaces with substantially planar faces (they are prismatic ellipsoids made of metal which will inherently have *substantially* planar faces).

With regard to claim 12, Alhamad teaches that the array is formed of thin metal mesh, which is a lightweight material.

With regard to claims 13 and 14, Alhamad teaches that the array is formed of metal mesh (see column 5, line 20) material (mesh inherently is perforated).

With regard to claims 15 and 24, Alhamad teaches that the array is in a roll or sheet form which can be joined together (see column 5, lines 14-16).

With regard to claims 17 and 18, Alhamad teaches that the array can be about 1 mm thick (see column 6, line 54).

With regard to claim 21, Alhamad is silent on the type of fastener used to attach the array to the structure. However, it is well known in the art to attach metal sheeting to another metal surface using screws or welding. It would, therefore, have been obvious for Alhamad to use welding or screws to attach the array to the vessel.

With regard to claim 26, Alhamad teaches that the orientation of the faces (and edges of the array defining the boundary) is such that the faces are arranged so as to be oblique to the direction of incident radar for a given range of incident directions. Looking at figure 1A, it can be inferred that when the array is fastened to the outer surface of a vessel (or any other vehicle), the orientation of the faces of the array 7 will be arranged so that they are oblique to the direction of incident radar no matter what direction the radar signals are coming from. Additionally, Alhamad teaches that the elements of the array have an elongated (see column 6, lines 42-45) prismatic cross section (see figure 1A). Alhamad does not teach a specific angle measurements for each element in the array. However, it is clear from figure 1A that the elements are of

substantial obliquity and would therefore reflect incident radar signals of angles at least up to 30 degrees. Additionally, it can be inferred that the angling of the elements will provide rigidity to the structure to stiffen the foil (as required by claim 16).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art made of record has been cited to show different methods for altering the radar signature of a structure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K Andrea whose telephone number is (703) 605-4245. The examiner can normally be reached on M-F 7:00-3:30.

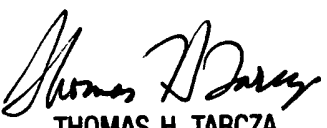
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703) 306-4171. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

BKA

BKA

09 September 2003


THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
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